AMENDMENTS TO THE SPECIFICATION:

Please cancel the title of record and substitute the following new title therefor:

-- OBJECT DETECTING DEVICE AND METHOD WITH MEANS FOR CONTROLLING DIRECTION OF SCAN BY ELECTROMAGNETIC WAVES ---

On page one of the application, after the Title of the Invention Section please add the following paragraph.

This application claims priority on Japanese patent application 2002-293743 filed October 7, 2002.

Paragraph starting at line 11 of page 1 has been amended as follows:

There have been known laser radars of the type to be carried on a vehicle for transmitting a laser light beam in the direction of its motion, receiving its reflected waves to thereby detect a front-running vehicle and automatically outputting an alarm signal in order to prevent a collision. In order to prevent erroneous recognition of an object by such a detecting device due to the sloping of its detection area caused ~~by errors~~ by errors in the attachment of the laser radar onto the vehicle or the condition of setting on the vehicle, Japanese Patent Publication Tokkai 2000-56020 has disclosed a method of transmitting laser light widely spreading in the vertical direction firstly in a first direction and secondly at a different time in a second direction which is farther upward from the first direction and adjusting the vertical direction of the optical axis of the laser light such that the received reflected waves have the same intensity. This method requires a plurality of laser diodes because laser light must be transmitted in different vertical directions and the structure of the laser radar becomes complex. Since use is made of laser light which spreads widely in the vertical direction, furthermore, there is a high probability of misjudging the road or overpasses and road signs disposed over the road as a vehicle. Still another problem of this prior art technology was that no correction could be made in the absence of an object of detection.

Paragraph starting at line 28 of page 6 has been amended as follows:

The laser light emitted by the LD 23 and reflected back by a target object of detection (such as a vehicle) is collected by a reception lens 28 and received by a photodiode (PD) 29, a signal corresponding to the level of received light being outputted to a light receiver circuit 30. The light receiver circuit 30 converts the inputted signal level of the reflected light into a number and outputs it to the control circuit 21. The control circuit 21 stores the inputted number (the level of received light) in a memory 31 corresponding to the scan position inputted from the vertical and horizontal scan position detectors 26 and 27. The memory 31 also serves to store the value of optical axis displacement correction and a histogram (as later referred to in Fig. 9). Numeral 32 indicates a vehicle speed sensor for detecting the speed of the vehicle 11 (or the "own vehicle" on which the laser radar 20 is installed) and outputting it to the control circuit 21. The control circuit 21 serves to correct the optical axis (at the center position of the vertical range of scan) and to measure the distance between a front-running vehicle and the own vehicle (on which it is installed) on the basis of the time it has taken for the laser light to be emitted, reflected and received. For reasons that will become clear from the descriptions given below, the control circuit 21 is hereinafter conveniently also referred to as judging (first, second and third) and setting means.

Paragraph starting at line 12 of page 8 has been amended as follows:

Figs. 5 and 6 show an example of ranges of horizontal and vertical scans when laser light is emitted from the vehicle 11 towards the front-running vehicle 12 of Fig. 1. According to the example shown in Figs. 5 and 6, the range of horizontal scan is divided into seven zones 61-67 and the range of vertical scan is divided into five zones 81-85. Table 1 shows the scan direction by the scanner 25 (to the left ← or to the right →) when the zones shown in Figs. 5 and 6 are scanned by the laser light. Vertical zone 83 is the center zone in the vertical direction. In this zone, the horizontal scan is effected from horizontal zone 61 to horizontal zone 67 ("main scan"). In the other vertical zones 81, 82, 84 and 85 above and below the center vertical zone 83, the horizontal scan is effected from horizontal zone 67 to horizontal zone 61 ("subscan 1, 2, 3 and 4").

Table 2 in page 2 has been amended as follows:

Sequence	Scan type	Scan time
S1	Main scan 1	50ms
S2	Subscan 1	50ms
S3	Main scan 1	50ms
S4	Subscan 2	50ms
S5	Main scan 1	50ms
S6	Subscan 3	50ms
S7	~~Main scan~~ Main scan 1	50ms
S8	Subscan 4	50ms